

**CWA COMPLIANCE EVALUATION INSPECTION REPORT  
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 5**

**Purpose:** Compliance Evaluation Inspection

**Facility:** Francisco Underground Mine  
CR 850E  
Francisco, Indiana 47649

**NPDES Permit Number:**  
ING040037

**Date of Inspection:** September 23 and 24, 2015

**EPA Representatives:**

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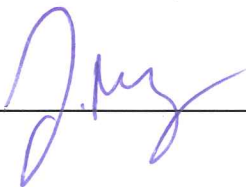
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**Report Date:**

**Inspector Signature**



11/27/15

## FACILITY BACKGROUND

The purpose of this report is to describe, evaluate and document Peabody Midwest Mining, LLC (Peabody) compliance with the Clean Water Act (CWA) at its facility in Francisco, Indiana. The compliance status of the facility was evaluated during an inspection on September 23 and 24, 2015.

The Categorical Standard applicable to the discharges from Coal Mining can be found in title 40 of the Code of Federal Regulations, Part 434, Coal Mining Point Source Category.

Discharges from the Francisco Mine are covered under the National Pollutant Discharge Elimination System Permit No. ING040037 (NPDES Permit). At the time of the inspection, the most recent permit modification occurred on August 14, 2015 with an effective date of August 2, 2015 and will expire on April 30, 2019. The permit requires monitoring nine outfalls and conformance with the requirements Title 327 of the Indiana Administrative Code, Rule 7, Facilities Engaged in Mining of Coal, Coal Processing, and Reclamation Activities (327 IAC 15-7). A copy of the August 14, 2015 NPDES Permit is included in Attachment E. A copy of the 327 IAC 15-7 is included in Attachment F.

The table below summarizes the nine outfalls contained in the NPDES Permit.

Outfall	Pond	Type of Wastewater	Applicable Limits		Smallest Storm for Alt. Limits	Notes
001	Pond SB-001	Preparation Plant Associated Areas – Alkaline (Comingled)	434.25(a) & (b), 434.61, 434.62, 434.63(b) 434.63(d)(2)	Drainage from Preparation Plant and associated areas.	1 yr-24hr	This pond receives water from SB-006.
006	Pond SB-006	Preparation Plant Associated Areas – Acid	434.25(a), 434.61, 434.62, 434.63(b) 434.63(d)(2)	Coarse Refuse Pile	1 yr-24hr	
011	Pond SB-011	Post-Mining	434.55(a), 434.61, 434.63(a)(2) 434.63(d)(2)	Reclaimed Land	Any Rain Event	
014	Pond SB-014	Preparation Plant Associated Areas -	434.25(b), 434.61, 434.62 and 434.63(a)(2)	RB-004	Any Rain Event	

		Alkaline	434.63(d)(2)			
062	Pond SB-062	Post-Mining	434.55(a), 434.61, 434.63(d)(2)	Reclaimed Land	Any Rain Event	
072	Pond SB-007C	Post-Mining	434.55(a), 434.61, 434.63(d)(2)	Reclaimed Land	Any Rain Event	
074	Pond SB-07R	Post-Mining, Underground Drainage - Alkaline	434.55(b)(2), 434.61, 434.63(f)	Underground Works, Administration Building Drainage, Pit Drainage	None	
075	Pond SB-075R	Preparation Plant Associated Areas - Alkaline	434.25(b), 434.61, 434.62 and 434.63(a)(2) 434.63(d)(2)	RB-005	Any Rain Event	
077	Pond SB-077	Preparation Plant Associated Areas - Alkaline	434.25(b), 434.61, 434.62 and 434.63(a)(2) 434.63(d)(2)	RB-006	Any Rain Event	

The mining operation is permitted under the Surface Mining Control and Reclamation Act (SMCRA) through Permit No: S-00301, issued by the Indiana Department of Natural Resources (IDNR)

Operations at the Francisco Underground Mine (Francisco Mine) were started as a surface mine operated by the Black Beauty Coal Company in 1996. At that time, the Preparation Plant was constructed and a basin just south of the Preparation Plant was used for waste disposal. This basin was referred to as Refuse Basin (RB)-001. After RB-001 was filled with Coal Fine Slurry, it was capped and disposal activities moved to RB-002, which is located to the north and west of the Preparation Plan.

The underground operations started in 2003. A disposal site for Coarse Tailings called Refuse Disposal Area (RDA)-003 was constructed north of RB-002. RDA-003 was in use at the time of the inspection, and Peabody has plans to expand the footprint of RDA-003.

In 2011, RB-004 was put into operation as a second Coal Fine Slurry Basin. In February 2013, Coal Fine Slurry disposal was transferred to the RB-005. In June 2015, Coal Fine Slurry disposal was again transferred to RB-006, which was the active basin at the time of the inspection. Additional Coal Fine Slurry disposal capacity existed in RB-002, RB-004 and RB-

005, but this capacity is being reserved for emergency situations. At completion the basins will be filled with tailings up to a depth of water of 8ft.

The Francisco Mine employs approximately 340 employees and is in operation 24 hours a day, 7 days a week. There are three shifts for the underground operations and 2 shifts at the Preparation Plant. The mine produces approximately 3 million tons of coal output annually.

### **Water Balance**

The Francisco Mine utilizes a coal preparation plant water circuit with several Coal Fine Slurry Basins and sedimentation basins. An exhibit developed for this report is included in Attachment G. It depicts the coal preparation plant water circuit. A water flow schematic developed for this report is included in Attachment H.

Slurry from the Preparation Plant is pumped at approximately 900 gpm to one of the Coal Fine Slurry Basins for disposal. Return water is routed through several sediment basins to SB-001. From SB-001, water is pumped to the Preparation Plant.

Water from the coal preparation plant water circuit is also used in the underground mine works and onsite as dust control. According to a follow-up email from Jeffery Olyphant on October 14, 2015, water use for the onsite dust control is equal to 3.5 million gallons annually. The water used in the underground mine works is approximately 40 to 45 million gallons annually. Water is sprayed on the clean coal shipped offsite at a rate of 4.5 gallons per ton and applied to the coarse refuse at 9 gallons per clean ton for a total of approximately 40 million gallons annually. A copy of the October 14 email is included in Attachment I.

A pump located at the Patoka River pumps water to Pond SB-001 to provide additional water to the coal preparation plant water circuit. An electric hour run meter was installed in September 2014. Peabody assumed that the Patoka River pumps run at 900 gpm. Based on the runtimes provided by Peabody, the pumps draw approximately 425,000 gallons per day, or 155 million gallons annually.

Periodic soundings are taken to determine the change in elevation of the coal fines deposited in the Coal Fine Slurry Basins. Based on data provided during the inspection, for the period June 2011 to June 2015, coal fines accumulated at a rate of approximately 590,000 gallons per day or 215 million gallons annually. During the inspection, facility representatives stated that the water levels in the Coal Fine Slurry Basins and Sediment Basins would fluctuate throughout the year, but indicated the long term elevations of the basins have remained unchanged.

## **2.0 PREVIOUS ENFORCEMENT AND INSPECTION HISTORY**

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IDNR conducts quarterly compliance inspections where site conditions and compliance with the NPDES permit are evaluated. Copies of the IDNR inspection reports are included in Attachment J.

Based on a complaint, IDEM conducted an inspection of a discharge of sediment to a receiving water. The inspection was conducted on July 3, 2014, and a copy of the inspection report is included in Attachment K. The inspection report documents a discolored discharge from Sediment Basin 075R to the receiving water. No samples of the baseflow from Sediment Basin 075R were taken in July 2014.

On August 13, 2014, a sample from Outfall 075 exceeded the Total Suspended Solids concentration. Peabody submitted a 24-hour Noncompliance Notice to IDEM. A copy of the notice is included in Attachment L.

Below is a summary chart of the violations for the last 5 years. The most recent violations from June and August 2014 were from the Sedimentation Basin 075 treating water from the Coal Fine Slurry Basin RB-005. After these violations, Peabody installed the booms with sediment curtains shown in IMG077.jpg, and used an alum treatment.

**Table for Violations**

Outfall	Location Desc.	Parameter		Units	Limit	Value	Monitoring Period End Date	Percent Exceedance
001-A	ALK, S-0301 001, KEG CREEK	Solids, total suspended	DAILY AV	mg/l	35	63	10/31/2010	80%
062-A	PM, S-0301 052, LOST CREEK	Solids, total suspended	DAILY AV	mg/l	35	41	03/31/2012	17%
075-A	ALK, S-0301 075R, LOST CR	Solids, total suspended	DAILY AV	mg/l	35	70	04/30/2013	100%
075-A	ALK, S-0301 075R, LOST CR	Solids, total suspended	DAILY AV	mg/l	35	43	09/30/2013	23%
075-A	ALK, S-0301 075R, LOST CR	Solids, total suspended	DAILY AV	mg/l	35	47	06/30/2014	34%
075-A	ALK, S-0301 075R, LOST CR	Iron, total [as Fe]	DAILY AV	mg/l	3	3.89	06/30/2014	30%
075-A	ALK, S-0301 075R, LOST CR	Solids, total suspended	DAILY AV	mg/l	35	49.37	08/31/2014	41%
075-A	ALK, S-0301 075R, LOST CR	Solids, total suspended	DAILY MX	mg/l	70	87	08/31/2014	24%

### 3.0 SITE INSPECTION

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Jonathan Moody and Don Schwer arrived onsite at the Francisco Mine at 9:00 a.m. Mr. Moody showed his credentials to Ken Rogers. Keith Condra from the Indiana Department of Environmental Management was already onsite. Mr. Moody explained the purpose and scope of the inspection and passed around the sign-in sheet included in Attachment M. The facility representatives gave an overview of the history and current operation of the facility.

At 1:15 p.m., the field portion of the first day of the inspection started. EPA visited the location of a septic field southeast of the Preparation Plant. A picture of the approximate location of the septic tank is shown in IMG\_0012.jpg.

The inspection continued to the 001 discharge point from Sediment Basin 001. Water enters this pond from the runoff from the clean coal pile, runoff from the Preparation Plant areas and pumped water from Sediment Basin 006. The primary and emergency discharge is a rip rap lined overflow. Samples are taken from the water flowing over the weir and flow is measured using the float method. At the time of the inspection, Sediment Basin 001 was not discharging.

The inspection continued to Sediment Basin 006. This basin receives runoff from the Refuse Disposal Area 003, and pumped water from Sediment Basin 014. Sediment Basin 006 is classified as acidic. The primary discharge is through a pipe which has a valve to control the flow. When discharging, sample collection and flow measurement can be done at the outlet of the pipe. No permanent treatment equipment is installed at Sediment Basin 006. In the past, when the pH in the pond fell below 6, a truck with a tank and pump were used to mix a NaOH solution into the pond to raise the pH. At the time of the inspection, Sediment Basin 006 was not discharging.

The inspection continued to the Refuse Basin 002. Coal fine slurry is not currently being deposited in this basin, and there is no current discharge to any other ponds. Historically, Refuse Basin 002 was able to discharge flows to Sediment Basin 006.

The inspection continued to a sump known as 'Sump K' located between the Preparation Plant and Sediment Basin 001. This sump is used to collect sediment from runoff from the Preparation Plant prior to the flow entering Sediment Basin 001.

The inspection continued to Sediment Basin 014. Flow enters from a gravity pipe from Refuse Basin 004 and from several other conveyance ditches. The discharge from Sediment Basin 014 occurs through a corrugated metal pipe to a road side ditch. At the time of the inspection, water was flowing from the discharge and the facility took a sample for analysis. This location is shown in IMG0047.jpg. Sampling and flow monitoring using the float method are conducted in a channel section downstream of the outflow culvert for Sediment Basin 014.

The inspection continued to Refuse Basin 006 and Sediment Basin 077. Flow from Refuse Basin

006 goes through Sediment Basin 077. The primary discharge from Sediment Basin 077 is controlled with a valve. At the time of the inspection the valve was shut and there was no discharge.

The inspection continued to the Sediment Basin 074 which receives some surface runoff from the employee parking lot and office building and water pumped from the sumps in the mine pit. The primary discharge is through an open channel. Water from Sediment Basin 074 can be pumped to a tank used for providing water to the underground mine works. At the time of the inspection, there was a discharge from Sediment Basin 074. Peabody gathered a sample from the location shown in IMG\_0065.JPG.

The first day of the inspection ended at approximately 5:00 p.m.

The second day of the inspection started with Refuse Basin 005, which discharges to Sediment Basin 075. The primary discharge from Sediment Basin 075 is protected by two rows of booms with sediment curtains. The discharge pipe goes to a roadside ditch and is tributary to Lost Creek. At the time of the inspection there was no discharge from Sediment Basin 075.

The field portion of the inspection ended with Sediment Basin 072. The primary discharge from Sediment Basin 072 is a rip rap lined channel. At the time of the inspection, there was no discharge.

EPA gave a Closing Conference and left the site at 3:00 p.m.

The chart below summarizes the field monitoring conducted during the inspection.

<b>Location</b>	<b>pH</b>	<b>DO</b>	<b>Conductivity</b>	<b>Receiving Water</b>	<b>Photo</b>
Sediment Basin 001 at the upstream side of the primary discharge	8.60	9.30	1308	Keg Creek	IMG_0018.JPG
Sediment Basin 006 in the pond just upstream of the emergency overflow	8.53	7.89	2039	Keg Creek	IMG_0026.JPG
'Sump K' upstream of Sediment Basin 001	8.73	-	-	N/A	IMG_0039.JPG
Sediment Basin 014 at the gravity flow from Refuse Basin 004.	8.30	7.16	1835	N/A	IMG_0040.JPG
Sediment Basin 014 upstream of the primary discharge	7.75	8.60	1526	Keg Creek	IMG_0042.JPG
Sediment Basin 014 at the compliance monitoring location	8.32	9.5	1542	Keg Creek	IMG_0047.JPG

Refuse Basin 006 at the discharge to Sediment Basin 077	8.35	6.53	830	N/A	IMG_0050.JPG
Sediment Basin 077 upstream of the primary discharge	8.53	-	-	Lost Creek	IMG_0054.JPG
Upstream of Sediment Basin 074. Receiving sump from the collection sumps in the mine pit.	8.13	-	3387	Lost Creek	IMG_0062.JPG
Sediment Basin 074 at the compliance monitoring location at the discharge	8.27	-	3785	Lost Creek	IMG_0065.JPG
Discharge pathway from Sediment Basin 062 to Lost Creek. East side of CR 650E.	8.32	7.81	1974	Lost Creek	IMG_0072.JPG
<b>Day 2</b>					
Sediment Basin 075 upstream of primary discharge	8.06	6.00	1023	Lost Creek	IMG_0078.JPG
Lost Creek North side of CR 50N	8.42	-	2049	Lost Creek	IMG_0085.JPG
Sediment Basin 062 at compliance monitoring location	8.37	-	1948	Lost Creek	IMG_0087.JPG

#### 4.0 DOCUMENT REVIEW

##### Discharge Monitoring Reports

327 IAC 15-7 allows for alternative effluent limits if a discharge is as a result of rainfall. 15-7(d)(1) states:

“When possible, grab samples shall be taken two (2) times per month with one (1) sample representative of the dry weather base flow and one (1) sample representative of a precipitation event. In the event that only one (1) discharge event or no discharge occurred during a monthly reporting period, the monthly discharge monitoring report shall so state.”

The data below is for the time period from September 2010 to August 2015. Each monitoring period without a sample is a period when the dry weather base flow was not monitored. A complete copy of the DMR monitoring for this period is included in the spreadsheet in Attachment N.

Monitoring Period	'X' Indicates Base Flow Not Sampled During Monitoring Period					
Month/Year	2010	2011	2012	2013	2014	2015
January					X	X
February		X	X		X	X
March				X		X
April		X	X		X	X
May			X	X	X	X
June				X		X
July		X		X	X	X
August			X			X
September			X			
October		X		X		
November	X	X		X		
December			X	X		

Based on a review of the DMR records while onsite, there were unmonitored discharge events from Sediment Basin 006 on June 24, 2013 and December 23, 2013. The facility representatives stated the rainfall causing the June 2013 discharge was over 8 inches and the rainfall causing the December 2013 event was between 4.5 and 7.5 inches. The facility believed that both of those event qualified it for the alternative limits and provided notification to the state.

EPA received copies of the design and as-built drawings for the following ponds:

- SB-001
- SB-006
- SB-014
- RB-004
- RB-005
- RB-005 & SB075
- RB-006 & SB077
- SB-072
- SB-011
- SB-062
- Permanent Impoundment PI022A
- SB-007R (Outfall 074)

Copies of the Refuse Basin and Sediment Basin records are included in Attachment O.

## **5.0 CLOSING CONFERENCE**

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At the closing conference, Mr. Moody requested copies of the following documents:

1. Patoka River water withdrawal records for 2010-2014
2. Sounding and coal fine slurry disposal records for 2010- 2014
3. Surface and groundwater monitoring data for the SMCRA permit for the 2012 to the present.
4. Stormwater runoff calculations if available

Mr. Moody also shared the following areas of concern:

1. The facility uses a flow monitoring method (float method) that differs from guidance in the EPA document "Performing Quality Flow Measurements at Mine Sites" EPA/600/R-01/043, September 2001.
2. The facility does not appear to consistently sample the baseflow of process water discharge. At the time of the inspection, no records of baseflow samples could be found for the preceding eight months.

### **LIST OF DOCUMENTS RECEIVED DURING INSPECTION**

1. Operations Plan Map (Oversized Sheet)
2. Packet of sounding data for RB-004 and RB-005
3. 2015 Patoka River Pump Records
4. Packet of As-built Drawings for Refuse Basins and Sediment Basins
5. Septic System Drawings
6. Certificate of Analysis 4082640
7. Certificate of Analysis 4082402
8. Certificate of Analysis 4082932
9. Certificate of Analysis 4062420
10. Certificate of Analysis 4082639
11. DMR June 2014
12. DMR June 2013
13. DMR October 2013
14. Monthly Monitoring Report (MMR) June 2013
15. MMR December 2012

On September 28, 2015 the facility provide copies of the surface and groundwater monitoring records required by the SMCRA permit.

On October 14, 2015 the facility provided copies of the sounding data and Patoka River withdrawal records. The facility also included additional information regarding water use onsite in an email. A copy of the October 14, 2015 email is included in Attachment I and a copy of the sounding and withdrawal records is included in Attachment Q.

## **LIST OF ATTACHMENTS**

- A. Photolog for Compliance Evaluation Inspection Francisco Underground Mine.
- B. Francisco Underground Mine Overview Map
- C. SMCRA Compliance Monitoring Points Map
- D. Reserved
- E. NPDES Permit Letter, dated August 14, 2015
- F. Title 327 Indiana Administrative Code 15-7, Facilities Engaged in Mining of Coal, Coal Processing, and Reclamation Activities.
- G. Slurry and Water Circuit Exhibit
- H. Slurry and Water Circuit Schematic
- I. Email from Jeffrey Olyphant dated 10/14/2015
- J. IDNR Inspections
- K. IDEM Inspection from July 2014
- L. 24-Hr Non Compliance Notice to IDEM from Peabody, dated August 21, 2014
- M. Sign-in Sheet from the Inspection Opening
- N. Discharge Monitoring Reports for September 2010 to August 2015
- O. Reserved
- P. Groundwater and Surface Water Monitoring Records January 2012 through June 2015
- Q. Soundings and Patoka River Withdrawal Records
- R. Document Receipt